Active Surveillance for hemolytic Uremic Syndrome in FoodNet Sites: 1997-1998

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Background: Hemolytic uremic syndrome (HUS) is a life-threatening illness characterized by hemolytic anemia, thrombocytopenia, and acute renal failure. Infection with *E. coli* O157:H7 and other serotypes of Shiga toxin-producing *E. coli* (STEC) is believed to be the leading cause of HUS in the United States.

Methods: To determine the incidence and clinical features of HUS in the United States; we established a network of pediatric nephrologists in the Emerging Infections Program's Foodborne Diseases Active Surveillance Network {FoodNet) sites in California, Connecticut, Georgia, Maryland, Minnesota, New York, and Oregon (total population 20.7 million). Beginning in 1997, participating physicians were contacted monthy to collect, clinical and demographic information on identified cases of HUS. Medical charts were reviewed following discharge to determine outcome and sequellae.

Results: A total of 93 cases of HUS were identified between 1997 and 1998. Nearly half of all cases occurred during the months of June, July, and August. The median age of patients was 4.0 years; 60% were female. Patients were hospitalized for a median of 11 days (range 1 to 59 days). Forty-two (45.2 %) patients required dialysis, and 11 (11.8 %) underwent surgery during their hospitalization. Complications included seizures in 13 (14.0 %), paralysis in 1 (1.1 %}, and other neurologic sequellae in 11, (11.8 %). One death was reported in 1997 and four deaths in 1998. Eighty-six cases (93%) followed a diarrheal prodrome. Combining data from both years, the rate of HUS following a diarrheal prodrome was 5.4 cases per million residents <16 years old and 14.3 cases per million residents <5 years old. Stool cultures were obtained for 80 (93%) of 86 patients with HUS following a diarrheal prodrome. *E. coli* 0157 was isolated from 30 (47%) of 64 specimens specifically cultured for the organism using sorbitol-MacConkey media. Six specimens were also tested for Shiga toxin using an enzyme-linked immunoassay (EIA) kit; three were Shiga toxin positive. *E. coli* 0157 was isolated from all three Shiga-toxin positive specimens and from one of three Shiga toxin negative specimens.

Conclusion: In the United States, most pediatric HUS cases follow a diarrheal illness *E. coli* O157:H7 can be isolated from almost half of all HUS patients. The observed incidence of HUS following a diarrheal prodrome in FoodNet sites is relatively high. Additional testing for Shiga toxin-producing organisms is needed to determine the proportion of cases caused by STEC serotypes other than O157. Although based oil a small number of observations, our findings suggest that use of a Shiga toxin assay does not obviate the need for specific culturing for *E. coli* O157.

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